New York State Integrated Pest Management Program

New York Integrated Pest Management Grants Program - 1997

Annual Project Report

Title: Optimizing Row Cultivation for High Residue Cropping Systems

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Summary. The objectives of this research were to refine the operating parameters of row cultivation for zone-till corn production to maximize weed control, and to evaluate the impact of row cultivation on soil erosion potential. In the experiment, row cultivation in zone-till corn was evaluated on three dates relative to the growth stage of the crop and at two sweep angle configurations (1 & 4 degrees). Row cultivation significantly reduced residue cover compared with the uncultivated plots. Weed control was significantly higher in the weed free controls compared with the cultivated plots. There was no evidence that cultivation had an effect on grain yields when compared with the un-cultivated herbicide controls. There was evidence that delaying cultivation resulted in grain yield losses. Sweep angle configuration had no effect on the measured parameters. In a second experiment, the effect of row cultivation on soil water infiltration was evaluated. Cultivation improved surface water infiltration, but reduced water flow through the soil profile under saturated conditions. These preliminary results suggest that row cultivation in zone-till can help reduce herbicide inputs while maintaining corn grain yields. However, row cultivation may result in higher soil erosion compared to conventional herbicide programs.

For a printed copy of the entire report, please contact the NYS IPM office at:

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